

DOCUMENT RESUME

ED 465 837

UD 035 072

AUTHOR Munoz, Marco A.
TITLE Class Size Reduction in a Large Urban School District: A Mixed Methodology Evaluation Research Study.
INSTITUTION Jefferson County Public Schools, Louisville, KY.
PUB DATE 2001-00-00
NOTE 36p.
PUB TYPE Reports - Research (143)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; *Class Size; Educational Improvement; Educational Research; Elementary Education; Parent Participation; Public Schools; *Small Classes; Teacher Attitudes; *Teacher Student Ratio
IDENTIFIERS Jefferson County Public Schools KY

ABSTRACT

This study evaluated the Class Size Reduction (CSR) program in 34 elementary schools in Kentucky's Jefferson County Public Schools. The CSR program is a federal initiative to help elementary schools improve student learning by hiring additional teachers. Qualitative data were collected using unstructured interviews, site observations, and document analysis. The data examined the impact of CSR on students, teachers, and parental involvement. A management-oriented evaluation model was used to conduct the quantitative or outcome part of the study. The continuous assessment system of Jefferson county and the state of Kentucky provided data collection and instruments. Students were matched by schools with similar socioeconomic characteristics, schools that participated in the assessment at the beginning and end of the school year, and schools having both regular and reduced class size. Results indicated that after the 1-year intervention in third grade, the CSR program did not increase student learning as measured by mathematics and reading standardized tests. Typical implementation strategies used were self-contained classrooms with fewer students and collaborative models with small group activities. The CSR resulted in higher teacher job satisfaction and morale and higher parent participation levels. (Contains 36 references.) (SM)

Running Head: Class Size Reduction

ED 465 837

Class Size Reduction in a Large Urban School District: A Mixed Methodology Evaluation Research Study

Marco A. Muñoz

Department of Accountability, Research, and Planning

Jefferson County Public Schools (JCPS)

VanHoose Education Center

3332 Newburg Road

Louisville, KY 40218

E-mail: mmunoz2@jefferson.k12.ky.us

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL HAS
BEEN GRANTED BY

M. Muñoz
Jefferson County Public
Schools
TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

1

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to
improve reproduction quality.

☐ Points of view or opinions stated in this
document do not necessarily represent
official OERI position or policy.

Abstract

In 1990, the Kentucky Educational Reform Act (KERA) mandated a complete restructuring of the public system. Jefferson County Public Schools (JCPS) is implementing the Class Size Reduction (CSR) Program in 34 elementary schools. The CSR program is a new federal initiative to help elementary schools improve student learning by hiring additional teachers. A comprehensive literature review framed this qualitative and quantitative investigation. The overall evaluation question that guided this study was the impact of the CSR program on students, teachers, and principals in JCPS elementary schools. First, a participative-oriented evaluation model was utilized for conducting the qualitative or process part of this study. Qualitative data were collected using unstructured interviews, site observations, and document analysis. The qualitative data analysis was based on the grounded theory model. Basic themes that were found during the process of this research included the impact of CSR on students, teachers, and parental involvement. Second, a management-oriented evaluation model was utilized for conducting the quantitative or outcome part of this study. The continuous assessment system of the county and the state of Kentucky provided data collection and instruments. A quasi-experimental design, using aggregated matching procedure for both comparison and treatment group was conducted ($N = 102$ students). Students were matched only from schools with (a) similar socio-economic characteristics, (b) participated in the assessment process at the beginning and at the end of the school year, and (c) having both conditions (regular and reduced class size). Findings indicated that, after one-year intervention in third grade, the class size reduction program did not increase student learning as measured by the same standardized test in the subject areas of reading and mathematics. Implications for policy, practice, and further research are discussed.

Class Size Reduction Program

Introduction

Jefferson County Public Schools (JCPS) is the 26th largest school district in the United States. The school district serves more than 96,000 students from preschool to grade 12. JCPS has a vision for long-term student achievement. The vision entitled "Beyond 2000" was designed to assure that every student will acquire the fundamental academic and life skills necessary for success in the classroom and workplace. JCPS vision commits the school system to educate each student to the highest academic standards.

The Class Size Reduction (CSR) program has the goal of impacting student learning. The stated goal of the CSR initiative is to help schools of Jefferson County to improve student achievement. The assumption is that JCPS will benefit by adding additional, highly qualified teachers, to the workforce to ensure class size –particularly in the early grades- is reduced to no more than 18 children per class. The population targets of the program are schools facing challenges in term of student achievement as measured by the previous state assessment system, the Kentucky Instructional Results and Information Systems (KIRIS). The target schools are 35 elementary schools in JCPS: 16 schools with a KIRIS index below 40 and 19 schools continuing with KIRIS indexes above 40.

The CSR program is a new initiative to help schools improve student learning by hiring qualified teachers so that children in the early elementary grades can attend smaller classes. The assumption underlying the program is based on a growing body of research demonstrating that students attending small classes in the early grades make more rapid educational progress than students in larger classes, and that these achievement gains persist well after students move on to larger classes in later grades.

School districts are currently receiving federal funds –\$1.2 billion—that will enable them to recruit, hire, and train new teachers for the 1999-2000 school year. That is just the first installment of an initiative that is anticipated to provide \$12.4 billion over 7 years to help schools hire 100,000 new teachers and reduce class size in the early grades to a nation wide average of 18. Schools are preparing to issue public “report cards” to inform parents and communities about progress in reducing class size and improving student achievement.

Early implementation reports that school districts and states are submitting show that districts are hiring thousand of teachers with these funds. These teachers are being placed primarily in grades one through three and class sizes are being reduced significantly as a result. Funds are targeted to high poverty communities, but most districts will receive awards.

Children participating in the CSR program will receive a more personal attention in smaller classes. In addition, children will acquire a solid foundation for further learning. Finally, children will learn to read independently and well by the end of the third grade.

Literature Review

The objective of this literature review is to present current research on the topic on class-size reduction. The general objective is to summarize major variables, operationalization of variables, research designs, findings, and recommendations concerned with class-size reduction projects. In the review of literature, two major studies were found: the Tennessee STAR experiment and the Wisconsin SAGE quasi-experiment (Grissmer, 1999). The following paragraphs will try to describe both experiments in general terms.

The Tennessee STAR experiment was a multi-district study. The researchers randomly assigned a single cohort of kindergarten students in 79 participating schools to three treatment groups: (a) large classes without an aide (approximate mean of 22-24 students); (b) large classes

with an aide (approximate mean of 22-24 students); and, (c) small classes (approximate mean of 15-16 students). Those students entering at kindergarten were scheduled to maintain their treatment through first, second, and third grade. However, the treatment groups changed in significant ways after kindergarten due to attrition and late-entering students. In this sense, this was a problem in terms of threats to internal validity.

The sample of participating students in any grade was over 6,000 students, but late entries and exits meant that about 12,000 students were included over the 4 years. There were approximately 2,000 students in small classes in the Tennessee study. The size of the control group was around 4,000 in the Tennessee experiment, if both regular and regular with aide classes are combined.

The characteristics of the students were different from those of average Tennessee students. The experimental sample contained approximately 33% minority students and over 50%-60% of all students were eligible for free or reduced-price lunch compared to 23% minority students and about 43% free or reduced-price lunch students for Tennessee in 1996. The sample was also different from students nation-wide in the US, where approximately 30% were minority students and 37% were eligible for free and reduced-price lunch in 1990.

The Wisconsin SAGE Quasi-Experiment also included only schools with very high proportions of free-lunch students. Assignments were not randomized within schools, but rather a pre-selected control group of students from different schools was matched as a group to the students in treatment schools. The treatment has been more accurately characterized as pupil-teacher ratio reduction since a significant number of schools chose two teachers in a large class rather than one teacher in a small class. The size of the reduction in pupil-teacher ratio was slightly larger than CSRs in Tennessee.

There were about 1,600 students in the small pupil-teacher treatment group in the Wisconsin study. The size of the control group was around 1,300 students in the Wisconsin quasi-experiment. The SAGE sample had approximately 50% minority students with almost 70% eligible for free or reduced-price lunch.

Tests were given at the beginning and end of the first grade, rather than at the end of consecutive years as in project STAR. Since achievement changes differently for advantaged and disadvantaged students over the summer, a beginning-year test for schooling effects is probably a better control than a previous end-year test.

The current results from experimental and quasi-experimental studies show statistically significant effects from large CSRs in early grades in all subjects tested from kindergarten through eight grade. However, the size of the effects is hard to pin down because it is dependent on student characteristics, the length of time, the grade level, the tests or measurements, and whether the effects are short or long-term. These basic results are also estimated using models that control for school effects and teacher and classroom covariates. Finn and Achilles (1999) report that beneficial effect for minority students are approximately double than those for White students in Grades K-3. Krueger (1999) also reports larger positive effects for minority students.

Grissmer (1999) argues that possible bias due to deviations from ideal experimental conditions should be analyzed. Hanushek (1999) summarizes potential threats to internal validity, including lack of randomization of schools, differential attrition, Hawthorne effects, and contextual factors (e.g., types of students, teachers, grades included, and curriculum). For example, schools were not randomly selected. The selection of schools is important for generalizability.

The schools selected were not representative of Tennessee schools, and were even less representative of students in the nation. In addition, teacher characteristics may be a likely factor influencing results. Some teachers may be more effective at utilizing the additional time small classes provide (Hanushek, 1999). Finally, the composition of the classes might be another important element. Krueger (1999) provides evidence that having more classmates who attended kindergarten and were not eligible for free lunch affected achievement in the Tennessee study.

Grissmer (1999) argues that the Tennessee and Wisconsin data certainly support larger class size effects for minority and free-lunch students. However, neither sample contained large enough proportions of more advantaged White students to determine if and how rapidly effects might approach to zero. Lee and Barro (1998) analyzed international data and found higher achievement with smaller class size. However, it is more difficult to do international comparisons since the level of family support and time spent outside the classroom on education can vary considerably across cultures.

As result, it is clear that exist multiple sources of experimental "noise" when conducting evaluation research on CSR programs. The class size effects might depend on the characteristics of the student population in the study. Class size effects may be large and significant only for minority and disadvantaged populations, and small or non-existent for more advantaged students. However, the Tennessee and Wisconsin experiment included mostly minority and disadvantaged populations. Since students with these characteristics probably comprise less than one third of all students nationally, other measurements that include the full range of students may show much smaller effects (Grissmer, 1999).

In addition, differences on class size effects differ by other contextual variables. Teacher characteristics (e.g., experience and education), grade, class size ranges, and type of school

(urban versus suburban) have an impact on the analysis. Another important element might be level of funding available per pupil. The CSR program net effect gets even more complicated if non-school variables affecting learning are included in the analysis (Munoz, Clavijo, & Koven, 1999). One method might be to compare the differences in covariates in large and small classes. However, the groups will still be non-equivalent groups.

Finn and Aquilles (1999) stress the finding that teachers report that students exhibit more "on-task" behavior and engagement in learning, not only in small classes in second grade, but after being returned to large classes in fourth grade in the STAR project. These on task behaviors may be due to more teacher attention, greater opportunity to participate, and other reasons.

Molnar, Smith, Zahorik, Palmer, Halbach, and Ehrle (1999) argue that the Wisconsin project suggests that teachers in small classes spend less time on discipline and more time on instruction. Teachers report more individualized instruction and greater knowledge of each student's strength and weaknesses. In addition, teachers reported more hands-on activities, more small group discussion, and more content covered. Betts and Shkolnik (1999) argue that the class size reduction results indicate statistically significant effects on a number of time variables. Teachers in smaller classes have more instructional time due to spending less time on discipline and administrative routines, and shift to instruction that is more individual and less lecture time.

Grissmer (1999) argues that, despite the potential flaws in non-experimental data, policy analysis will largely be dependent on improving non-experimental analysis. Large-scale experiments such as the Tennessee STAR experiment can be costly and time consuming to plan, implement, and analyze. "While more experimentation seems essential to making progress in educational research, experiments can never be depended on to solve all the complex and contextual effects." (p. 239).

Finally, in this literature review, it should be mentioned some elements concerned with costs of CSR. According to Grissmer (1999), costs are significantly reduced by targeting reductions to students in lower income families as measured by free-lunch participation. Since the results from experimental data consistently show larger short-term effects for minority and free lunch students, CSRs will be significantly more cost-effective when targeted to these students. For example, the program can have a better cost-benefit if targeted at schools having at least 50% of students eligible for free and reduced-price lunch. This is in accordance to previous research on student achievement and its connection with student socio-economic status (SES) in the district under examination (Munoz & Dossett, 2001).

In summary, a mixed method design involving qualitative and quantitative research might prove useful to understand the dynamic of the CSR program in a large urban district. At this moment, few studies have involved the analysis of the CSR program from the perspective of key stakeholders such as teachers and principals (CSR Research Consortium, 1999). In any successful educational reform effort it is clear that it relevant to include what happens at the classroom level. In addition, a quasi-experimental design might show light about the impact of the federal initiative in terms of student scores on the same standardized tests given at the beginning and at the end of the school year under study.

For the first analysis, the purpose was to conduct a grounded-theory qualitative study on the CSR program in JCPS. The overarching question that guided this investigation was: what kind of insights might be obtained from stakeholders (i.e., teachers and principals) participating in the CSR program? Ancillary questions were concerned with the implementation strategies, the impact on students academic and non-academic measures, the impact on parental involvement, and obtaining feedback for improving the program. For the second analysis, the purpose was to

conduct a quasi-experiment quantitative study on the CSR program in JCPS. The overarching evaluation research question is the following one: What is the impact of CSR at the participating elementary schools in terms of student educational achievement? In specific, the objective was to determine if there was a difference in achievement on post-test scores between a treatment group and a matched comparison group of students.

Evaluation Models

A Mixed Methodology Approach

The qualitative and quantitative paradigms can illuminate decision makers. Greene & McClintock (1985) argue that mixed designs can be used for five distinct purposes: triangulation, complementarity, development, initiation, and expansion. The triangulation and complementarity purposes are the ones that could be used for evaluating the CSR program. Quantitative and qualitative methods can be used in combination, but more in a complementary fashion (i.e., not in a "mixing" fashion). In this evaluation study, it will not be a case of a "small q" approach (i.e., open-ended responses on a questionnaire as qualitative measures). In the CSR program evaluation, the differences in nature between quantitative and qualitative methodology will be established from the very beginning:

Researchers who work deductively gather data to test specific hypotheses, not to generate new hypotheses, and serendipitous findings are considered interesting but unreliable. By contrast, researchers who work inductively continue to generate new hypotheses and look for new questions even as they gather data (Worthen et al., 1997, p. 396).

The Participant-Oriented Evaluation Approach

The participant-oriented evaluation approach (Worthen, Sanders, & Fitzpatrick, 1997) was utilized in the CSR program evaluation. The level of involvement of multiple stakeholders

distinguishes the participant-oriented approach to evaluation. In this study, many stakeholders were involved during the evaluation process. Many sources of evidence and perspectives were analyzed, such as teachers and principals participating in the CSR program. The participant-oriented evaluation approach has an important characteristic: it is the most ardent in advocating the inclusion of many different perspectives. No one view of the program reflects truth and, thus, the evaluator must seek many different perspectives to understand the evaluation object in its totality (Guba & Lincoln, 1989; Patton, 1994; Stake, 1967; Stake, 1995). An evaluator who follows a participant-oriented evaluation approach typically uses: (a) inductive reasoning, (b) a multiplicity of data, (c) a plan that emerges during the evaluation, and (d) multiple rather than single realities. Stake (1995) argues that the central focus of participant-oriented evaluation is the focus on concerns and issues of the stakeholders. The ultimate test of an evaluation study, validity, is the extent to which the evaluation increases the audience's understanding of the entity under evaluation. Corroboration of data through crosschecking and triangulation are two methods used by naturalistic evaluators to establish credibility of the findings (Guba & Lincoln, 1989). Under the participant-oriented evaluation, a sample of key persons involved in the implementation of the CSR program were interviewed and observed. The evaluator conducted informal discussions with different key person or stakeholders, namely teachers and principals. In the CSR program, the qualitative portion included examples that could characterize it as a formative evaluation. In the next part, the summative study, involved collecting and analyzing quantitative data.

The Management-Oriented Evaluation Approach

The management-oriented evaluation approach (Worthen, Sanders, & Fitzpatrick, 1997) was used in the outcome evaluation of the CSR program. Daniel Stufflebeam (1983; Stufflebeam

& Shinkfield, 1985) is one of the most reputed leaders on the management-oriented approach. According to Stufflebeam, the evaluation is a process of delineating, obtaining, and providing useful information for judging decision alternatives. The Context, Input, Process, and Product (CIPP) Evaluation has different objectives, methods, and relation to decision making in the change process depending on the type of evaluation emphasis.

The management-oriented rationale is that the evaluative information is an essential part of good decision-making and that the evaluator can be most effective by serving administrators, policy makers, boards, practitioners, and others who need good evaluative information (Worthen et al., 1997, p. 97).

Campbell (1969) seminal article on reform as experiments is germane to this evaluation. Today, 30 years later, many ameliorative programs terminate with no interpretable evaluation. The good intentions of educational administrators are not enough. Establishing social indicators, data banks, and management information systems (MIS) is not enough. As Campbell (1969) argues, administrators are sometimes so committed in advance to the efficacy of the reform, that cannot afford a honest evaluation. Capitalizing on regression, grateful testimonials, and confounding selection and treatment are the major strategies to bias the analysis.

The United States and other modern nations should be ready for an experimental approach to social reform, an approach in which we try out new programs designed to cure specific social programs, in which we learn whether or not these programs are effective, and in which we retain, imitate, modify, or discard them on the bases of apparent effectiveness on the multiple imperfect criteria available. (p. 409)

Experimental or quasi-experimental research designs are intended to establish cause-effect among variables. The reader should keep in mind that only researchers conducting "true"

experimental designs can provide the most convincing evidence about causation, that is, whether a variable X has a causal effect on a variable Y. True experimental designs have random assignment of participants into treatment and control groups (Winer, Brown, & Michels, 1991). The CSR program evaluation will be quasi-experimental (Campbell & Stanley, 1966). Quasi-experimental designs do have control or comparison groups, but do not have random assignment of participants. In the CSR program evaluation, as in many social or educational programs, randomness does not exist. The CSR quasi-experimental evaluation design has different levels of strength in terms of quality, i.e., internal and external validity (Campbell & Stanley, 1966). Cook and Campbell (1979) added two more classes of validity in addition to internal and external validity: (a) statistical conclusion validity (whether the study has appropriate statistical testing procedures and acceptable error probabilities) and (b) construct validity of causes and effects (whether the researcher has defined the treatment adequately). The evaluator focused on the cognitive domain (e.g., the effect on student achievement) and exercised as much control as possible on extraneous variables. In addition, an understanding of the theory of why the treatment should work will help in interpreting the data (Lipsey, 1993).

Method for the Qualitative Study

Units of Analysis

A participant-oriented approach to evaluation is similar to case study research. A case study is the preferred research strategy under certain conditions such as: (a) when investigators have little control over events and (b) when the focus is on a contemporary phenomenon in some real-life context (Yin, 1994). This case study fits these criteria. The study was conducted as the program was implemented in the 1999-2000 school year. In total, 40 key stakeholders from eight of the 34 schools participating in the program were interviewed. The sample was selected based

on the maximum variation sampling technique, which involves selecting cases that illustrate the range of variation in the phenomena to be studied (Gall, Borg, & Gall, 1996). The criterion used to select the sample of CSR elementary schools was to be located in the upper, average, and lower end of the continuum on the KIRIS Index scores. The schools in the program included two low-performing schools, four average-performing schools, and two high-performing schools. The stakeholders participating in the interviews were (a) 32 teachers responsible for planning curriculum and delivering instruction and (b) eight principals involved with program development and administration. The researcher conducted non-structured classroom observations in all the participating schools for purposes of data triangulation and member checking (Gall, Borg, and Gall, 1996).

Instrumentation

In general, the qualitative measures included document analysis (e.g., schools plans), semi-structured interviews, non-structured observations, and field notes (e.g., school climate). Overall, the evaluation was conducted using a comparative case study based on the grounded-theory paradigm (Gall, Borg, & Gall, 1996; Glaser & Strauss, 1967; Strauss & Corbin, 1990; Yin, 1994). The grounded-theory is guided by initial concepts, but shifts or discards them as the data are collected and analyzed (Marshall & Rossman, 1989, p. 113). The great advantage of the qualitative measures is that it allowed the evaluators to understand at a deeper level the context under the CSR program is operating. In addition, the evaluator had the opportunity to involve various stakeholders. For instance, teacher perceptions toward the program were captured by interviewing them (n = 32). The same concept applies to principal perceptions of the program under examination and through the use of interviews (n = 8).

Data Collection and Analysis

To examine some dimensions of the CSR program, a qualitative approach was employed to understand the experiences of primary stakeholders—school principals and teachers. The qualitative paradigm will respond to the need of understanding the social processes that defines the CSR program. In this sense, this study was grounded in the belief that truth and knowledge are created (Schwandt, 1994) and that understandings of the world are socially constructed (Gergen & Gergen, 1991). Data collection began in December 1999 and continued through March 2000. Data were gathered from multiple methods including interviews, observations and documents. The primary source of data consisted of in-depth, semi-structured interviews with the 40 key stakeholders (e.g., what are your perceptions about the advantages and disadvantages of the CSR program). A secondary source of data consisted of classroom observations in the selected schools (e.g., level of student engagement in learning as on-task behavior). Field notes were also made throughout the site visits during the evaluation of the program. Field notes documented such factors as the nature of student-teacher interactions and the types of concerns expressed by stakeholders such as the principals.

Data collection and analysis occurred simultaneously. It was continued throughout the study (Glaser & Strauss, 1967). The data analysis was based on the constant comparison method (Glaser & Strauss, 1967). “The constant comparison method refers to the continual process of comparing segments within and across categories. Using constant comparison, the researcher clarifies the meaning of each category, creates distinctions between categories, and decides which categories are most important to the study” (Gall, Borg, & Gall, 1996, p. 566-567). Ongoing analysis influenced the scope and direction of succeeding observations, interviews and document collections. Triangulation of findings was achieved by the use of multiple data

collection methods, as well as by independent data analysis with other stakeholders involved in the evaluation at JCPS (Bogdan & Biklen, 1998). Coding processes included identifying concepts embedded within the data, organizing discrete concepts into categories, defining the properties and dimensions of categories and linking them according to their properties and dimensions into broad, explanatory themes (Strauss, 1987; Strauss & Corbin, 1990). Qualitative research thrives on “thick descriptions,” (Gall, Borg, and Gall, 1996).

Method for the Quantitative Study

Participants

Thirty-four elementary schools in JCPS are currently participating in the CSR program. The characteristics of the participating students are different from those of average JCPS elementary students. JCPS elementary schools have approximately 34.8% minority students and about 59.9% of all students eligible for free or reduced-price lunch. The CSR program schools contain approximately 40% minority students and about 72% of all students eligible for free or reduced-price lunch.

The participating schools were first examined to analyze the number of students per class in grade 3. For all the schools participating in the CSR program (N = 1,798 students), the evaluator tested the impact of the program by randomly creating two matched groups: (a) more than 18 students (i.e., comparison group); and, (b) less than 19 students (i.e., treatment group) that participated in the assessment process at the beginning and at the end of the school year. The goal was to discover the number of schools that could be analyzed using a “nested design” to overcome as many threats to internal validity as permitted. Table 1 shows the schools and testing scores of the students that had two types of classes in grade 3: (a) less than 19 students and (b) more than 18 students. It has to be noted that not all the participating elementary schools

took the pre- and post-test instrument in the school year. Four schools met this condition. In terms of free/reduced lunch population, School A has 58%, School B 58%, School C has 52%, and School D has 62% for the 1999-2000 academic year. Thus, the comparability in this important socio-economic indicator is evident across the purposefully selected schools participating in this analysis. There was no effort to check comparability in terms of reading and writing across the four schools since the third graders do not receive the CATS assessment in the District under examination.

An aggregated matching procedure was used to guarantee that the two groups were equivalent. A total of eight participants were excluded from the analysis after ensuring that the groups were similar in the fundamental academic variables, namely reading and mathematics pre-test scores taken in the Fall of 1999 (i.e., from $N = 110$ to $N = 102$ students).

Table 1

Students from the Schools Participating in the CSR Nested Design Study (N = 110)

<u>School</u>	<u>N</u>	<u>M</u>	<u>SD</u>	<u>t value</u>
School A				
Stanford Reading				
Less than 19 students	13	4.92	1.12	.00
More than 18 students	13	4.92	1.12	
Stanford Math				
Less than 19 students	13	5.08	1.89	-1.87
More than 18 students	13	3.69	1.89	
School B				
Stanford Reading				
Less than 19 students	15	3.87	1.85	-.21
More than 18 students	15	3.73	1.67	
Stanford Math				
Less than 19 students	15	4.33	1.54	-1.78
More than 18 students	15	3.33	1.54	
School C				
Stanford Reading				
Less than 19 students	13	3.73	1.67	-.21
More than 18 students	13	3.87	1.85	
Stanford Math				
Less than 19 students	13	3.33	1.54	-1.78
More than 18 students	13	4.33	1.54	
School D				
Stanford Reading				
Less than 19 students	14	2.86	.86	-.85
More than 18 students	14	3.21	1.31	
Stanford Math				
Less than 19 students	14	2.57	1.16	-.69
More than 18 students	14	2.93	1.54	

p < .05

Table 2 shows the results of the “comparability” on the fundamental variables of this analysis, that is, reading and mathematics. The Stanford Reading and Mathematics Diagnostic Tests were used as pre-test measures (i.e., taken in the Fall of 1999) and post-test measures (i.e., taken in the Spring of 2000). The standardized tests were given at the beginning and at the end of the school year following the system-wide assessment calendar. As mentioned previously, Table 3 shows that, as expected because of the match-paired procedure, no statistical significance difference was found between the treatment and comparison groups both in reading and mathematics when independent-samples t-tests were conducted.

Table 2

Students Matching Procedure on Reading and Mathematics Pre-Test (N = 102)

<u>Groups</u>	<u>Mean</u>	<u>SD</u>	<u>t-value</u>
Reading			
Treatment group	2.8	1.5	-.23
Comparison group	2.8	.9	
Mathematics			
Treatment group	3.1	1.5	-.08
Comparison group	3.1	1.4	

Note:

Treatment group $n = 47$; Comparison group $n = 55$

As previously mentioned, a pair-matching procedure was again utilized to assure similarity between the groups of students. Table 3 shows the demographic and social characteristics of both groups of students. Socio-economic status, operationalized as participation in the national lunch program, is a critical variable in this kind of studies. The comparability is evident in socio-economic status and age expressed in years. The comparison group had more Black and female students than the treatment group. The evaluator decided to keep this group as it was to ensure enough statistical power to avoid a Type II error, that is, not finding statistically significant difference when it exists (Stevens, 1996).

Table 3

Profile of Participating Students (N = 102)

<u>Group</u>	<u>N</u>	<u>Age in Years</u>	<u>Race</u>	<u>Gender</u>	<u>Lunch Type</u>
Comparison	57	9.36	54% Black	60% Female	79% Free
			42% White	40% Male	14% Pay
			4% Other		7% Reduce
Treatment	47	9.36	45% Black	45% Female	75% Free
			51% White	55% Male	17% Pay
			4% Other		9% Reduce

An additional step was taken to consider one of the typically confounding variables in the review of the literature. Table 4 shows the profile of the teachers in each of the groups.

Differences were observed between both groups in years of teacher experience. CSR teachers are much less experienced than teachers in the regular classrooms. The range was very dissimilar between both groups of teachers. As it can be observed, while the CSR teachers had from zero to 15 years of experience, the non-CSR teachers had from zero to 27 years of teaching experience. This is an important element that needs to be considered when interpreting this analysis and determining the implications for policy, practice, and further research.

Table 4

Teachers Years of Teaching Experience in Comparison and Treatment Groups

<u>Group</u>	<u>Mean</u>	<u>SD</u>	<u>Range</u>
Comparison	10.6	8.9	0 - 27
Treatment	6.6	4.9	0 - 15

Instrumentation

In general, quantitative measures will be based on already established data collection mechanism of the county under examination. Data will come from the Management Information System (MIS) of the county. Then, the evaluator will place the information into the Statistical Package for the Social Sciences (SPSS) through the creation of a data file.

The central measures will be related to student achievement since they will become outcome criteria for establishing success of the program. Currently, the Clay's Observation Survey is used to measure student achievement for Kindergarten and first graders; however, this instrument has not been fully implemented in the district under examination. For third grade students, the Stanford Diagnostic Test (Reading and Mathematics) is used in the District under examination. For third grade students, the Stanford test, given at the end of the school year, was used to measure student learning. The summer effect on student learning is a typical confounding variable. The summer effect was controlled in this study by using post-test measures given at the end of the school year to both the comparison and the treatment group.

Data Analysis & Procedures

As mentioned previously, for the quantitative dimension of this evaluation study, descriptive and quasi-experimental designs will be used (Gall, Borg, & Gall, 1996). First, descriptive statistics will be performed. Second, quasi-experimental designs and analyses will be utilized for assessing tentative cause-effect relationships. Stevens (1996) recommends that independent-samples t-test should be used when two groups of subjects are being compared on a dependent variable. All data will be entered and analyzed using the Statistical Package for the Social Sciences (SPSS), version 10.0.

Qualitative Study Findings

More than a class-size reduction per se, the CSR program in JCPS has been used to decrease the pupil-teacher ratio in the sample of participating schools. The typical implementation strategies found in the sample of JCPS elementary schools were (a) self-contained classrooms having fewer students in their classroom at the early grades and (b) collaborative models with small group activities both within the classroom and outside the classroom.

The self-contained classroom strategy consisted of a process of assigning the newly hired teacher to a particular primary level or grade. At the same time, not only the newly hired teacher experienced the fact of having fewer students in their classroom. Senior teachers of the school are now having the experience of having a decrease in number of the students they work with. In this regard, it became relevant to listen to their impressions on CSR, too.

Concerning the collaborative model, an example coming from one of the schools visited is illustrative. At this particular school, the cooperative model was a learning experience for both teachers and students. The teacher is a highly-skill teacher who became itinerant to role model to other group of teachers while helping kids in a very particular subject area. In this sense, this becomes a kind of embedded professional development for new teachers but also an exposure of the children to an outstanding teacher. The implementation evaluation permitted the evaluator to observe and interview principals showing what can be characterized as administrative “wisdom.” Administration is a science and an art. It is the art of making decisions under “the law of the situation” (Shafritz & Ott, 1996). For example, Principals adjusted the program to meet their particular needs. Furthermore, in some schools, principals utilized the CSR teachers to support the Consolidated Plan focus (e.g., reading, writing, etc.), especially for student performing below

average. In addition, in some schools, CSR teachers were appointed through interesting empowering exercises within their site-based decision making councils.

The teachers involved in the CSR program have diverse background. In many schools, CSR teachers are transfers that bring experience to their particular schools. In other cases, CSR teachers are totally new teachers to the District. For the experienced teacher, the CSR program has provided them the opportunity to revisit instructional methodologies and techniques that permit higher student engagement in learning. For the new teachers, the CSR program has facilitated their process of entrance to the teaching profession. For example, a new teacher said: “working with fewer kids gives me the opportunity of applying my teacher preparation programs in a better environment.”

Principal and Teachers Fundamental Perceptions about the CSR Program.

The overall impression after visiting, interviewing, and observing a sample of eight participating schools is that principals and teachers are very enthusiastic about having moved from 24 to 18 students (or even less in some cases). Teachers stated the importance of the program: “this program is so important for us.” In addition, according to several teachers interviewed, “having fewer kids makes a huge difference” in the classroom. Five basic themes were found during the process of this research: (1) CSR impact on students, (2) CSR impact on teachers, and (3) CSR impact on parental involvement.

CSR Impact on Students. Principals and teachers reported benefits to students in both cognitive and non-cognitive dimensions. In terms of cognitive benefits, teachers have more instructional and contact time. In addition, teachers can provide better attention to individual needs, especially to those facing barriers to learning. These factors are helping student’s

cognitive development. There is a general climate of high expectations on student achievement (e.g., CTBS scores on state assessment).

In terms of non-cognitive benefits, teachers are experiencing an increase in levels of attendance, less disciplinary problems, and less time spent on classroom management activities. Besides, there are higher levels of “student-teacher connection,” which makes easier to develop better understanding and communication with each student. According to the teachers interviewed: “having few kids makes a big difference in terms of behavior.” In general, both principals and teachers agree that benefits for students are more on a long-term basis. In fact, the impact on achievement is expected only when students will be at the Intermediate Grades, or in about three or more years. According to the teachers and principals interviewed, this fact does not discard the possibilities of finding short-term results after one year of the CSR program implementation. In general, schools look forward to the program renewal because it has been a support to their priorities, namely, learning and student achievement.

CSR Impact on Teachers

Principals and teachers cited many benefits for themselves. Principals stated that higher levels of certificate personnel morale has been present since teachers have fewer students in their classrooms. In this regard, principals argued that the CSR program provides them with an opportunity to keep “pressure for improvement” at the teacher level. Teachers at two different levels have felt the impact of CSR: (a) working conditions and (b) instructional methodologies and techniques. In terms of working conditions, teachers experience “higher levels of satisfaction and morale,” and “lower levels of stress.” Teachers are “enjoying being in the teaching-learning profession,” and “the pressure for accountability is better handled.” Teachers feel more responsible in classrooms with fewer students. Particularly, new teachers experience a better

entrance to their career. Teachers said: “what is good for the mother (teacher) is doing good for the child (student)”. Teachers have implemented some changes in their instructional methodologies and techniques. According to teachers, teaching and learning are positively affected by having fewer students in the classroom. Some of the common instructional issues are the student-centered approach, which becomes closer to reality according to their perceptions in a class with fewer students. The student-centered approach promotes centering all teaching activities on students learning needs. Other techniques are individualized instruction, small group activities, manipulative learning, experiential learning, hands-on learning, and better implementation and use of diagnostic tools.

Some of the teachers that were interviewed asserted that “every body can understand the big difference, except if either you have never been in a classroom or you have been away of the classroom for too long.” According to principals and teachers, an adjustment in instructional methodologies and techniques are occurring in various schools. CSR is motivating teachers to explore new avenues for teaching students. Even experienced educators in the field for many years are now exploring and experimenting ways of “doing things around here.” This trend is expected to have positive impact on student achievement. For example, a teacher said “the program enables to really think about implementing best practices.” Another teacher argued that “now, there is more time to learn and use more diagnostic instruments.” Cited diagnostic tools included the Clay Observation Survey, Silvaroli Classroom Reading Inventory, Writing Diagnostics, and Stanford Diagnostic Tests.

Nevertheless, it must be mentioned that some teachers presented some level of skepticism. For instance, a teacher said: “Not all teachers are taking advantage of the classroom with fewer students. Some teachers continue to teach in the same old style.”

CSR Impact on Parental Involvement

The majority of teachers expressed that the levels of communication and interaction between parents and teachers have notably increased since the implementation of the CSR program. Personal relationships between parents and teacher are starting to occur. Therefore, teachers have more knowledge on family issues that are affecting students' learning process. This element is especially helpful with students having more barriers for learning. According to a teacher, "creating a parent-teacher relationship takes time. The lower the number of students, the more chances to develop an in-depth cooperative relationship that will promote learning." Many of the teachers found the CSR program as critical for early identification of family issues affecting student learning. For example, a teacher said: "if you have an empty stomach and a difficult environment at home, it is just more difficult to concentrate and learn." However, according to a teacher, "there is no significant difference in teacher-parent relationships after the program was implemented at the beginning of the year."

Quantitative Study Findings

The evaluator conducted an independent-samples t-test to observe student gains in learning as measured by the standardized test by means of comparing the aggregated matched groups. No statistically significant differences were found in reading and mathematics in the comparison and treatment groups participating in this matched-based study on CSR. Table 5 displays the results of this analysis.

Table 5

Independent-Sample T-Test (N = 102)

<u>Group</u>	<u>Post-Test Mean</u>	<u>SD</u>	<u>t-value</u>
Reading			
Comparison group	3.1	1.33	.35
Treatment group	3.0	1.55	
Mathematics			
Comparison group	3.2	1.65	1.72
Treatment group	2.6	1.70	

Discussion

From a qualitative research perspective, the early findings of the CSR program suggest that the teacher job satisfaction and morale is achieving higher levels. In addition, qualitative evidence suggest that teachers are spending less time instructing whole classes and that the program is having an impact in the use of new teaching strategies. Also, the teachers are spending less time on discipline and behavioral-related issues. In respect to parent-teacher relations, the evidence suggests that there are higher levels of contact in parental involvement.

Further research is needed to improve our understanding of the impact of the CSR program in terms of actual translation in student achievement gains, especially for disadvantaged students. Since job satisfaction is considered as a fundamental predictor of job performance, it is

probable to expect that teachers' higher level of satisfaction might express on higher levels of student achievement.

The study showed the existence of some challenges for the implementation of the CSR program. Some principals are experiencing problems in relationship to number of students enrolled and space limitation. In some cases, the school did not have an available room for a new teacher. Therefore, the school implemented collaborative models with itinerant teachers. Another limitation was related to knowledge and training on effective techniques in foundational subjects taking advantage of research-based best practices. In this regard, the treatment (i.e., class size reduction) needs to be fleshed with instructional approaches that optimize teacher effectiveness in a class with fewer students.

Principals mentioned several caveats to make this program even more successful: (a) fine-tune the recruitment and selection process of teachers hired to participate in the program; (b) provide an orientation program to new hires on District Vision and Mission, school's plans, and effective techniques in foundational subjects; and (c) develop on-the-job training or conferences for all teachers on proper implementation and use of diagnostic and assessment tools with students, and on successful teaching techniques for small groups. Finally, teachers articulated the need for developing content-specific training and development activities. For example, for those teachers working on self-contained classrooms, it was recommended the possibility to develop on-the-job training activities providing new methodological "tools" to take advantage of fewer students. Another example is for those teachers working on a collaborative model. Teachers working as partners of other teachers presented the need to develop on-the-job training or conferences on how to work cooperatively to avoid "territorial" approaches to teaching.

From a quantitative research perspective, it can be seen that a one-year intervention does not produce immediate results in student learning. No statistically significant difference was found between the matched-pair comparison and treatment group. Both comparison and treatment group received a pre-test at the beginning of the school year and a post-test at the end of the school year. Only the schools that received the standardized test were part of this investigation that controlled for the summer effect on student learning. In addition, probably having the less experienced educators in charge of the reduced classes might have had an impact in the District under examination.

Initial orientation and training for CSR teachers is a fundamental recommendation from this research. Only those well-trained teachers might have the knowledge and skills to take advantage of the lower class size educational intervention at the primary level. Efforts to increase the quality of teachers involved in the CSR program, as in any educational program, are important in the long run and significant scores gain might be obtained with a better prepared teaching force (Darling-Hammond, 1997).

The results of this research can be discussed in light of the findings of a recently published RAND study (Grissmer, Flanagan, Kawata, & Williamson, 2000). According to Grissmer et al. (2000, p. xxxii), "the Tennessee results suggest that two students can have similar pretest scores and similar schooling conditions during a grade and still emerge with different posttest grades that have been influenced by different earlier schooling conditions." From the standpoint of child development, these results are consistent with the concepts of risk and resiliency in children. In this respect, the RAND study argues that four years of small classes appear to provide resiliency against later larger class sizes, whereas one or two years does not.

The limitations of the mixed method evaluation were multiple. First, the participative-oriented evaluation approach used in this study was limited in at least two ways. First, the nature of case study research is to gain an in-depth, contextual understanding of one or more cases (Yin, 1994). Thus, direct generalizability to other school districts' CSR programs is not advisable. Second, this study did not include qualitative student data. The students' views were not included given that the purpose of this study was to understand the perspectives of stakeholders who were involved in the implementation and administration of the program over time. Second, the management-oriented evaluation approach complement the qualitative study by means of analyzing testing data using quantitative tools. The CSR program quantitative evaluation design was not a true experimental design. In this regard, it should be noted the existence of multiple threats to internal validity. Internal validity is related to measuring the net effect of the treatment. In this sense, the CSR program evaluation faces the problem of establishing causality while controlling for extraneous or confounding variables. Sample size, external validity, and generalizability were also an issue in this research since only the lowest performing schools are participants of the CSR program. The sample can be considered as small but the reason is that, not all schools in the District, take the post-test assessment at the end of the school year. It is difficult to establish if the treatment can be generalized to different participants, settings, or times.

In general, the CSR program design is weaker in internal validity but stronger in external validity. Major threats to internal validity affecting the CSR program included history, maturation, and regression toward the mean. For example, "history" (i.e., events affecting participants in addition to the treatment) was present, since many of the participating schools have several programs already in place and the program involved the entire academic year.

"Maturation" (i.e., participants change over time) and statistical regression (i.e., on the average, participants in the extremes at pre-testing get closer to the mean when post-tested irrespective of the treatment) were threats to internal validity also present in this research study. Further research needs to overcome the aforementioned threats to internal validity and assess the longitudinal impact of the CSR program in large urban districts.

In conclusion, it needs to be mentioned that the CSR program is on its initial stages of implementation. So far, after one year of implementation, CSR does not have a statistically significant impact when compared to regular classrooms. However, many program effects in educational settings only come after various years of implementation. Another study might be needed to address the issue longitudinal influences and/or using different measurement instruments to assess the impact of the program.

References

- Betts, J. R., & Shkolnik, J. L. (1999). The behavioral effects of variations in class size: The case of math teachers. Educational Evaluation and Policy Analysis, 21, 193-214.
- Bogdan, R. C., & Biklen, S. K. (1998). Qualitative research in education: An introduction to theory and methods. Boston: Allyn and Bacon.
- Campbell, D. T. (1969). Reform as experiments. The American Psychologist, 24, 409-429.
- Campbell, D. T., & Stanley, J. C. (1966). Experimental and quasi-experimental designs for research. Chicago: Rand-McNally.
- Cook, T. D., and Campbell, D. T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Chicago: Rand-McNally.

CSR Research Consortium (1999). Class size reduction in California 1996-98: Early findings signal promise and concerns. Palo Alto, CA: The American Institutes for Research.

Darling-Hammond, L. (1997). Doing what matters most: Investing in quality teaching. NY: National Commission on Teaching and America's Future.

Finn, J. D., & Achilles, C. M. (1999). Tennessee's class size study: Findings, implications, misconceptions. Educational Evaluation and Policy Analysis, 21, 97-110.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). Educational research: An introduction. White Plains, NY: Longman.

Gergen, K. J., & Gergen, M. M. (1991). Toward reflexive methodologies. In F. Steir (Ed.), Research and reflexivity (pp. 76-95). Newbury Park, CA: Sage.

Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory: strategies for qualitative research. New York: Aldine.

Greene, J. G., & McClintock, C. (1985). Triangulation in evaluation: Design and analysis issues. Evaluation Research, 9, 523-547.

Grissmer, D. (1999). Class size effects: Assessing the evidence, its policy implications, and future research agenda. Educational Evaluation and Policy Analysis, 21, 231-248.

Grissmer, D., Flanagan, A., Kawata, J., & Williamson, S. (2000). Improving student achievement. Santa Monica, CA: RAND.

Guba, E. G., & Lincoln, Y. S. (1989). Fourth generation evaluation. Thousand Oaks, CA: Sage.

Hanushek, E. A. (1999). Some findings from an independent investigation of the Tennessee STAR experiment and from other investigations of class size effects. Educational Evaluation and Policy Analysis, 21, 143-164.

- Krueger, A. B. (1999). Experimental estimates of education production functions. Quarterly Journal of Economics, CXIV, 497-532.
- Lee, J., & Barro, R. J. (1998). Schooling quality in a cross section of countries. Cambridge, MA: Harvard Institute for International Development.
- Lipsey, M. W. (1993). Theory as method: Small theories of treatments. In L. B. Sechrest and A. G. Scott (Eds.). Understanding causes and generalizing about them. New Directions in Program Evaluation, No. 57. San Francisco, CA: Jossey Bass.
- Marshall, C., & Rossman, G. B. (1989). Designing qualitative research. Newbury Park, CA: Sage.
- Molnar, A., Smith, P., Zahorik, J., Palmer, A., Halbach, A., & Ehrle, K. (1999). Evaluating the SAGE program: A pilot program in targeted pupil-teacher reduction in Wisconsin. Educational Evaluation and Policy Analysis, 21, 165-178.
- Munoz, M. A., & Dossett, D. (in press). Equity and Excellence: The Effect of Poverty on Student Achievement Across Multiple Years in a Reform Environment.
- Patton, M. Q. (1994). Developmental education. Evaluation Practice, 15, 311-320.
- Rossi, P. H., & Freeman, H. E. (1993). Evaluation: A systematic approach. Newbury Park, CA: Sage.
- Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry. In N. K. Denzin & Y. K. Lincoln (Eds.), Handbook of qualitative research (pp. 118-137). Thousand Oaks, CA: Sage.
- Shafritz, J. M., & Ott, J. S. (1996). Classics of Organization Theory. Belmont, CA: Wadsworth.

Stake, R. E. (1967). The countenance of educational evaluation. Teacher College Record, 68, 523-540.

Stake, R. E. (1995). The art of case study research. Thousand Oaks: Sage.

Stevens, J. (1996). Applied multivariate statistics for the social sciences. Mahwah, NJ: Lawrence Erlbaum Associates.

Strauss, A. L. (1987). Qualitative analysis for social scientists. New York: Cambridge University Press.

Strauss, A. L., & Corbin, J. (1990). Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage.

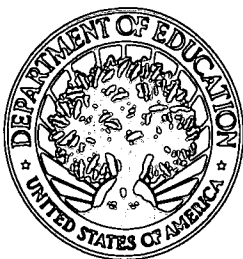
Stufflebeam, D. L. (1983). The CIPP model for program evaluation. In G. F. Madaus, M. Scriven, & D. Stufflebeam (Eds.), Evaluation models: Viewpoints on educational and human services evaluations. Boston, MA: Kluwer-Nijhoff.

Stufflebeam, D. L., & Shinkfield, A. J. (1985). Systematic evaluation. Boston, MA: Kluwer-Nijhoff.

Winer, B. J., Brown, D. R., & Michels, K. M. (1991). Statistical principles in experimental design. San Francisco, CA: McGraw Hill.

Worthen, B. R., Sanders, J. R., & Fitzpatrick, J. L. (1997). Program evaluation: Alternative approaches and practical guidelines. New York: Longman.

Yin, R. K. (1994). Case study research: Design and methods. Thousand Oaks, CA: Sage.



**U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)**



REPRODUCTION RELEASE
(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: <u>Class Size Reduction in a Large Urban School...</u>	
Author(s): <u>Marco A. Munoz</u>	
Corporate Source: <u>Jefferson County Public Schools</u>	Publication Date: <u>2001</u>

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

The sample sticker shown below will be affixed to all Level 2A documents

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 1



Level 2A



Level 2B



Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Signature: <u>Marco Munoz</u>	Printed Name/Position/Title: <u>Marco Munoz</u>	
Organization/Address: <u>3332 Newburg Rd</u> <u>Louisville, KY 40218</u>	Telephone: _____	FAX: _____
	E-Mail Address: _____	Date: _____

Sign
here, →
please

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

ERIC CLEARINGHOUSE ON ASSESSMENT AND EVALUATION
UNIVERSITY OF MARYLAND
1129 SHRIVER LAB
COLLEGE PARK, MD 20742-5701
ATTN: ACQUISITIONS

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
4483-A Forbes Boulevard
Lanham, Maryland 20706

Telephone: 301-552-4200

Toll Free: 800-799-3742

FAX: 301-552-4700

e-mail: ericfac@inet.ed.gov

WWW: <http://ericfac.piccard.csc.com>